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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/650,887

08/28/2003

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MP0306

8722

26703 7590 05/14/2008  
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EXAMINER

SANTIAGO CORDERO, MARIVELISSE

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

05/14/2008

PAPER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/650,887  
Filing Date: August 28, 2003  
Appellant(s): DONOVAN ET AL.

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Michael D. Wiggins  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed on 3/14/2008 appealing from the Office action  
mailed 5/21/2007

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

Claims 1-92, 94-104, 106-115, 117-122, 134, 136-155, 157-167, 169-178, 180-185, 197, 199-238, and 253-258 have been rejected.

Claims 93, 105, 116, 123-133, 135, 156, 168, 179, 186-196, 198, and 239-252 have been canceled.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: (a) Claims 134, 136-153, 197, 199-216, and

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253-258 under 35 U.S.C 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellants regards as the invention.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,774,813	JOKINEN	6-1998
2004/0029620	KARAOGUZ	2-2004
6,763,471	AOYAMA	7-2004
6,029,061	KOHLSCHMIDT	2-2000
6934871	AMOS	8-2008

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 134-153, 197-216, and 253-258 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention.

Regarding claims 134-153, 197-216, and 253-258, it is not clear what elements a first and second wireless circuit encompasses. The drawings and specification does not clarify what the wireless circuits might be. Claim 141 states that the first wireless circuit is one of a baseband processor (BBP) and/or an RF transmitter; however, the drawings do not show these elements as wireless; nor the specification classifies them as such. Appropriate correction is required.

Claims 1-4, 6, 8-9, 13-16, 18-22, 24-25, 31-35, 36, 38-39, 43-46, 48-52, 54-55, 61-64, 66, 68-69, 73-82, 74-76, 78-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over

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Jokinen (Patent No.: 5,774,813) in views of Karaoguz (Pub. No.: US 2004/0029620) and Aoyama.

Regarding claim 1, Jokinen discloses a wireless network device (col. 1, lines 13-17; col. 4, lines 40-45) with active and low power modes (col. 3, lines 54-63), comprising:

a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode (col. 4, lines 30-40);

a second voltage regulator (col. 4, lines 30-40), and that regulates supply voltage during the low power mode (col. 4, lines 30-40); and

a controller device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode (col. 5, lines 17-23; col. 6, lines 12-17), wherein the wireless network device at least one of transmits and receives data during the active mode (col. 1, line 66 through col. 2, line 15).

Jokinen fails to specifically disclose Ethernet; the second voltage regulator dissipating less power than said first voltage regulator; and the controller being a medium access controller (MAC). However, note that wireless network device may be mobile telephones or portable computers, notoriously well known in the art, at the time of invention by appellant, for their configuration in wireless Ethernet networks and that MAC devices are representative of Ethernet network devices.

Nevertheless, in the same field of endeavor, Karaoguz discloses a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's device to operate in a wireless Ethernet network and modifying the controlling device to be a MAC as suggested by Karaoguz for the advantages that Ethernet is widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC complies with wireless network devices, specifically Ethernet.

In addition, in the same field of endeavor, Aoyama discloses a device with active and low power modes, comprising a second voltage regulator that dissipates less power than said first voltage regulator (Fig. 3, reference 1; col. 3, lines 6-10; col. 7, line 66 through col. 8, line 2).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's second voltage regulator to dissipate less power than said first voltage regulator as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-31)

Regarding claims 31 and 61, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 1.

Regarding claim 2, in the obvious combination, Karaoguz discloses further comprising a baseband processor (BBP) that performs radio frequency mixing (Fig. 6, reference 158) and that communicates with said MAC device (Fig. 6).

Regarding claims 32 and 62, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 2.

Regarding claim 3, Jokinen in combination with Karaoguz and Aoyama disclose the device of claim 2; but fail to specifically disclose wherein at least one of said first and second

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voltage regulators is located in said BBP. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to locate at least one of said first and second voltage regulators of Jokinen in combination with Karaoguz and Aoyama in said BBP, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893), in addition, to make it integral and place in a single housing.

Regarding claims 33 and 63, the limitations are rejected for the same reasons and motivations stated above for claim 3.

Regarding claim 4, in the obvious combination, Karaoguz discloses further comprising a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode (Fig. 6; paragraph [0037]; note that PLL inherently generates clock signals).

Regarding claims 34 and 64, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 4.

Regarding claim 6, in the obvious combination, Karaoguz discloses further comprising a crystal oscillator that outputs a timing signal to said first PLL during the active mode (Fig. 6; paragraphs [0037] and [0043]; note that a crystal oscillator inherently outputs a timing signal).

Regarding claims 36 and 66, the limitations are rejected for the same reasons and motivations stated above for claim 6.

Regarding claim 8, in the obvious combination, Aoyama discloses further comprising a first oscillator that generates a third clock signal during the low power mode, wherein said first oscillator dissipates less power than said crystal oscillator (Aoyama: Fig. 3, reference 4)

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate a first oscillator that generates a third clock signal during the low power mode wherein said first oscillator dissipates less power than said crystal oscillator as suggested by Aoyama for the advantages of minimize power consumption by operating the controller at the lowest clock speed necessary and by turning off the high frequency oscillator when not in use.

Regarding claims 38 and 68, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 8.

Regarding claim 9, in the obvious combination, Jokinen discloses wherein when said MAC device (note the modification of claim 1) initiates the low power mode, said first voltage regulator is shut down (col. 4, lines 30-40).

Regarding claims 39 and 69, the limitations are rejected for the same reasons and motivations stated above for claim 3.

Regarding claim 13, in the obvious combination, Jokinen discloses wherein said MAC device includes a counter and wherein when said MAC device initiates the low power mode, said second voltage regulator powers said counter (col. 4, lines 57-61; col. 5, lines 17-23; note that the period on time inherently requires a counter). In addition, Aoyama discloses said second voltage regulator powers said first oscillator (Figs. 3 and 9).

Regarding claims 43 and 73, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 13.

Regarding claim 14, in the obvious combination, Jokinen discloses wherein when said counter reaches a predetermined count, said MAC device powers up at least said first voltage



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regulator (col. 8, lines 22-49). In addition, Karaoguz discloses powering up at least two of said crystal oscillator, said first voltage regulator, said RF transceiver, said first PLL and said second PLL (paragraph [0043]).

Regarding claims 44 and 74, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 14.

Regarding claim 15, in the obvious combination, Karaoguz discloses wherein said wireless Ethernet network device is operated in an infrastructure mode (paragraph [0051]).

Regarding claims 45 and 75, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 15.

Regarding claim 16, in the obvious combination, Karaoguz discloses wherein said wireless Ethernet network device is operated in an ad hoc mode (paragraph [0051]).

Regarding claims 46 and 76, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 16.

Regarding claim 18, a wireless network device with active and low power modes, comprising:

a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode (col. 4, lines 30-40);

a second voltage regulator that regulates supply voltage during the low power mode (col. 4, lines 30-40);

a controller device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode (col. 5, lines 17-23; col. 6, lines 12-17).

Jokinen fails to specifically disclose Ethernet; the second voltage regulator dissipating less power than said first voltage regulator; the controller being a medium access controller (MAC); a baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device; and a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode; and a crystal oscillator that outputs a timing signal to said first PLL during the active mode, wherein said MAC device powers down said first PLL before shutting down said first voltage regulator and said crystal oscillator.

However, note that wireless network device may be mobile telephones or portable computers, notoriously well known in the art, at the time of invention by appellant, for their configuration in wireless Ethernet networks and that MAC devices, baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device and a first phase locked loop (PLL) that generates a first clock signal for said BBP and a crystal oscillator that outputs a timing signal to said first PLL are all representative of Ethernet network devices.

Nevertheless, in the same field of endeavor, Karaoguz discloses a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]); a baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device (Fig. 6); and a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode (Fig. 6); and a crystal oscillator that outputs a timing signal to said first PLL during the active mode (Fig. 6), wherein said MAC device powers down said first PLL before shutting down said first voltage regulator and said crystal oscillator (paragraphs [0043] and [0054]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's device to operate in a wireless Ethernet network and a medium access controller (MAC); a baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device; and a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode; and a crystal oscillator that outputs a timing signal to said first PLL during the active mode, wherein said MAC device powers down said first PLL before shutting down said first voltage regulator and said crystal oscillator for the advantages that Ethernet is widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC, BBP, PLL, and oscillator comply with wireless network devices, specifically Ethernet and for the advantages of extending the battery life to a maximum amount (Karaoguz: paragraph [0009]).

In addition, in the same field of endeavor, Aoyama discloses a device with active and low power modes, comprising a second voltage regulator that dissipates less power than said first voltage regulator (Fig. 3, reference 1; col. 3, lines 6-10; col. 7, line 66 through col. 8, line 2).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's second voltage regulator to dissipate less power than said first voltage regulator as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-31)

Regarding claims 48 and 78, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 18.

Regarding claim 19, in the obvious combination, Karaoguz discloses wherein said crystal oscillator is an external crystal oscillator (XOSC) (Fig. 6).

Regarding claims 49 and 79, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 19.

Regarding claim 20, in the obvious combination, Karaoguz discloses wherein said crystal oscillator includes an external crystal and an amplifier (Fig. 6; col. 4, paragraph [0037]). Karaoguz fails to disclose that is integrated with one of said MAC device, said BBP, and said RF transceiver. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to integrate said crystal oscillator with one of said MAC device, said BBP, and said RF transceiver, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893), in addition, to making integral and placing in a single housing.

Regarding claims 50 and 80, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 20.

Regarding claim 21, in the obvious combination, Karaoguz discloses wherein said MAC device includes transmit and receive state machines (Fig. 7) and a transmit buffer (Fig. 7) and further comprising initiating said low power mode when said transmit buffer is empty and said transmit and receive state machines are idle (paragraphs [0047] and [0051]).

Regarding claims 51 and 81, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 21.

Regarding claim 22, Jokinen in combination with Karaoguz and Aoyama disclose the claimed invention except for wherein said wireless Ethernet network device dissipates less than 2mW when in said low power mode. However, it would have been obvious to one of ordinary skill in this art at the time the invention was made to dissipate less than 2mW when in said low power mode, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 52 and 82, the limitations are rejected for the same reasons and motivations stated above for claim 22.

Regarding claim 24, in the obvious combination, Jokinen in combination with Karaoguz and Aoyama fail to disclose wherein said first oscillator is located in said BBP. However, it would have been obvious to one of ordinary skill in this art at the time the invention was made to locate said first oscillator in said BBP, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893), in addition, to making integral and placing in a single housing.

Regarding claims 54 and 84, the limitations are rejected for the same reasons and motivations stated above for claim 24.

Regarding claim 25, in the obvious combination, Karaoguz discloses wherein at least two of said BBP, said first voltage regulator, said second voltage regulator, said RF transceiver, said MAC device, and said first PLL are implemented by a system on chip (SOC) (paragraph [0036]).

Claims 5, 7, 10-12, 17, 35, 37, 40-42, 47, 65, 67, 70-72, 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jokinen in combination with Karaoguz and Aoyama and further in view of Appellant's admitted prior art.

Regarding claim 5, Jokinen in combination with Karaoguz and Aoyama fail to specifically disclose wherein said first PLL is located in said BBP.

However, Appellant's admitted prior art discloses wherein said first PLL is located in said BBP (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to locate said first PLL of Jokinen in combination with Karaoguz and Aoyama in said BBP as suggested by Appellant's admitted prior art for the advantages of making integral and placing in a single housing.

Regarding claims 35 and 65, the limitations are rejected for the same reasons and motivations stated above for claim 5.

Regarding claim 7, in the obvious combination, Karaoguz discloses further comprising a radio frequency (RF) transceiver that transmits and receives wireless signals, that communicates with said BBP (Fig. 6).

Jokinen in combination with Karaoguz and Aoyama fail to disclose that includes a second PLL that receives said timing signal from said crystal oscillator during the active mode and that generates a second clock signal for said RF transceiver.

However, Appellant's admitted prior art discloses an RF transceiver that includes a second PLL (Background of the Invention: paragraphs [0002]-[0003]; note the plurality of phase locked loops) that receives said timing signal from said crystal oscillator during the active mode

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and that generates a second clock signal for said RF transceiver (Background of the Invention: paragraph [0003]; the RF transceiver may include PLL which inherently generates clock signals).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to include in the RF transceiver of Jokinen in combination with Karaoguz and Aoyama a second PLL that receives said timing signal from said crystal oscillator during the active mode and that generates a second clock signal for said RF transceiver as suggested by Appellant's admitted prior art because they adjust the frequency of the input signal.

Regarding claims 37 and 67, the limitations are rejected for the same reasons and motivations stated above for claim 7.

Regarding claim 10, in the obvious combination, Karaoguz discloses wherein when said MAC device (note the modification of claim 1) initiates the low power mode, said RF transceiver is shut down (paragraph [0043]).

Regarding claims 40 and 70, the limitations are rejected for the same reasons and motivations stated above for claim 10.

Regarding claim 11, in the obvious combination, Karaoguz discloses wherein when said MAC device initiates the low power mode, said first and second PLL are shut down (paragraph [0043]; see modification of claim 7).

Regarding claims 41 and 71, the limitations are rejected for the same reasons and motivations stated above for claim 11.

Regarding claim 12, in the obvious combination, Karaoguz discloses wherein when said MAC device initiates the low power mode, said crystal oscillator is shut down (paragraph [0043]; see modification of claim 7).

Regarding claims 42 and 72, the limitations are rejected for the same reasons and motivations stated above for claim 12.

Regarding claim 17, in the obvious combination, Karaoguz discloses wherein said MAC device includes an external interface (Fig. 2) and wherein when said MAC device receives a wake up signal from a host via said external interface (Fig. 2), said MAC device powers up at least two of said crystal oscillator, said first voltage regulator, said RF transceiver and said first and second PLL (paragraph [0053]).

Regarding claims 47 and 77, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 17.

Claims 23, 53, and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jokinen in combination with Karaoguz and Aoyama and further in view of Chapman.

Regarding claim 23, Jokinen in combination with Karaoguz and Aoyama disclose the device of claim 6, further comprising a processor that communicates with said crystal oscillator (Karaoguz: Fig. 6), but fail to disclose further comprising that calibrates said first oscillator using said timing signal from said crystal oscillator.

However, in the same field of endeavor, Chapman discloses a processor that calibrates said first oscillator using said timing signal from said crystal oscillator (from col. 2, line 65 through col. 3, line 5).



Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to calibrate said first oscillator using said timing signal from said crystal oscillator Jokinen in combination with Karaoguz and Aoyama as suggested by Chapman because it would compensate for the inaccuracy of the oscillator due to its dependence upon voltage, process and temperature and it's inherent frequency instability (Chapman: from col. 2, line 65 through col. 3, line 5).

Regarding claims 53 and 83, the limitations are rejected for the same reasons and motivations stated above for claim 23.

Claims 26-30, 56-60, and 86-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jokinen in views of Karaoguz and Aoyama.

Regarding claim 26, Jokinen discloses a processor for a wireless network device (col. 1, lines 13-17; col. 4, lines 40-45) with active and low power modes (col. 3, lines 54-63), comprising:

a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode (col. 4, lines 30-40); and

a second voltage regulator (col. 4, lines 30-40), and that regulates supply voltage during the low power mode (col. 4, lines 30-40); wherein the wireless network device at least one of transmits and receives data during the active mode (col. 1, line 66 through col. 2, line 15).

Jokinen fails to specifically disclose a baseband processor, Ethernet; and the second voltage regulator dissipating less power than said first voltage regulator. However, note that wireless network device may be mobile telephones or portable computers, notoriously well known in the art, at the time of invention by appellant, for their configuration in wireless

Ethernet networks and those baseband processors devices are representative of these devices, specifically, Ethernet network devices.

Nevertheless, in the same field of endeavor, Karaoguz discloses a baseband processor for a wireless Ethernet network device with active and low power modes (Figs. 1 and 6; Abstract).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify the processor of Jokinen to be a baseband processor for a wireless Ethernet network as suggested by Karaoguz for the advantages that Ethernet is widely available, cost-effective, and is the best engineering design choice; in addition, that the baseband processor complies with wireless network devices and are widely available.

In addition, in the same field of endeavor, Aoyama discloses a device with active and low power modes, comprising a second voltage regulator that dissipates less power than said first voltage regulator (Fig. 3, reference 1; col. 3, lines 6-10; col. 7, line 66 through col. 8, line 2).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's second voltage regulator to dissipate less power than said first voltage regulator as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-31)

Regarding claims 56 and 86, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 26.

Regarding claim 27, in the obvious combination, Karaoguz discloses wherein said baseband processor receives a power mode select signal from a medium access controller (Fig. 6; paragraphs [0054] and [0057]).

Regarding claims 57 and 87, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 27.

Regarding claim 28, in the obvious combination, Karaoguz discloses further comprising a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode (Fig. 6; note that PLL inherently generate clock signals during active mode) and that is powered down during the low power mode (Fig. 6; paragraphs [0043]).

Regarding claims 58 and 88, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 28.

Regarding claim 29, in the obvious combination, Karaoguz discloses wherein said first PLL receives a timing signal from a crystal oscillator during the active mode (Fig. 6; note that PLL inherently receives timing signals from an oscillator).

Regarding claims 59 and 89, the limitations are rejected for the same reasons and motivations stated above for claim 29.

Regarding claim 30, in the obvious combination, Aoyama discloses further comprising a first oscillator that generates a second clock signal during the low power mode (Figs. 3 and 6, reference 4) wherein said first oscillator dissipates less power than the crystal oscillator (Fig. 3; col. 3, lines 32-46).

Regarding claims 60 and 90, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 30.

Claims 91-92, 101-102, 154-155, 164-165, 217-218, and 224-225 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt (Patent No.: 6,029,061) in view of Amos, as evidenced by Shi (Pub. No.: US 2003/0132881).

Regarding claim 91, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

an oscillator that generates a first reference frequency (Fig. 1, reference 101) and a second reference frequency that is lower than said first reference frequency (Fig. 1, reference 102);

a radio frequency (RF) transceiver that communicates with said oscillator and that transmits and receives RF signals (Fig. 1, reference 106);

a baseband processor (BBP) that communicates with said oscillator (Fig. 1; col. 1, lines 46-51); and

a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42) and transitions from said first frequency to said second frequency when transitioning from said active mode to said low power mode (col. 3, lines 22-28), and that operates said BBP and said RF transceiver in said active mode (col. 3, lines 22-28; col. 5, lines 12-21) and transitions from said second frequency to said first frequency when transitioning from said low power mode to said active mode (col. 3, lines 28-32), wherein a control device includes said shutdown module (Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2)

Kohlschmidt fails to specifically disclose the BBP that performs RF mixing (Fig. 1; col. 1, lines 46-51); and a medium access control (MAC) device. Note, however, Kohlschmidt discloses most types of communication systems employ signal processors for the real-time processing of signals (Fig. 1; col. 1, lines 46-51; note that RF mixing is a type of signal processing). Further note that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify the control device of Kohlschmidt to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in Kohlschmidt, they are widely available and is required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

In addition, although Kohlschmidt fails to specifically disclose the BBP that performs RF mixing, the Examiner takes Official Notice of fact that it was notoriously well known in the art at the time of invention by Appellant that baseband processors perform RF mixing for the advantages of integrating the signal processing components and process in a single entity. As evidence of the fact that baseband processors perform RF mixing, see Shi paragraph [0026]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by Appellant to perform with the BBP of Kohlschmidt RF mixing for the advantages of integrating the signal processing components and process in a single entity.

Regarding claims 154 and 217, the limitations are rejected for the same reasons and motivations stated above for claim 91.

Regarding claim 92, in the obvious combination, Kohlschmidt discloses wherein said oscillator includes a first oscillator that generates said first reference frequency (Fig. 1, reference numeral 101) and a second oscillator that consumes less power than said first oscillator and that generates said second reference frequency (Fig. 1, reference numeral 102).

Regarding claims 155 and 218, the limitations are rejected for the same reasons and motivations stated above for claim 92.

Regarding claim 101, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claims 164 and 224, the limitations are rejected for the same reasons and motivations stated above for claim 101.

Regarding claim 102, in the obvious combination, Kohlschmidt/Amos disclose a system comprising a wireless device with active and low power modes further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (Amos: col. 1, lines 62-65; col. 5, lines 1-8).

Regarding claims 165 and 225, the limitations are rejected for the same reasons and motivations stated above for claim 102.

Claims 94, 157, and 219 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination Amos, and further in view of Chapman.

Regarding claim 94, Kohlschmidt/Amos discloses the wireless device of claim 92 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate the second oscillator of Kohlschmidt/Amos to include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43).

Regarding claims 157 and 219, the limitations are rejected for the same reasons and motivations stated above for claim 94.

Claims 95-97, 100, 158-160, 163, and 220-221 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt/Amos as applied to claim 91 above, and further in view of Aoyama.

Regarding claim 95, Kohlschmidt/Amos disclose the wireless device of claim 91 (see above), but fail to disclose further comprising a voltage supply that supplies a first voltage level during said active mode and a second voltage level during said low power mode.

However, in the same field of endeavor, Aoyama discloses a voltage supply that supplies a first voltage level during said active mode and a second voltage level during said low power mode (Figs. 3 and 9; from col. 7 line 51 through col. 8, line 2).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate in the wireless device of Kohlschmidt/Amos a voltage supply that supplies a first voltage level during said active mode and a second voltage level

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during said low power mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it.

Regarding claim 158 and 220, the limitations are rejected for the same reasons and motivations stated above for claim 95.

Regarding claim 96, in the obvious combination, Aoyama discloses wherein said voltage supply includes a first voltage supply that supplies said first voltage level (Figs. 3 and 9; reference Vdd) and a second voltage supply that supplies said second voltage level (Figs. 3 and 9; reference 1; from col. 7, line 66 through col. 8, line 2).

Regarding claims 159, the limitations are rejected for the same reasons and motivations stated above for claim 96.

Regarding claim 97, in the obvious combination, Aoyama discloses wherein said shutdown module transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (from col. 7, line 66 through col. 8, line 2) and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39).

Regarding claims 160 and 221 the limitations are rejected for the same reasons and motivations stated above for claim 97.



Regarding claim 100, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator and said second voltage supply includes a second voltage regulator (Figs. 3 and 9).

Regarding claim 163, the limitations are rejected for the same reasons and motivations stated above for claim 100.

Claims 98-99, 161-162, and 222-223 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt/Amos as applied to claim 91 above, and further in view of Appellant's admitted prior art.

Regarding claim 98, Kohlschmidt/Amos disclose the wireless device of claim 91 (see above), including a first phase locked loop (PLL) (Kohlschmidt: col. 5, line 65 through col. 6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode (Kohlschmidt: col. 6, lines 7-10); but fails to disclose wherein said RF transceiver includes the first PLL.

However, Appellant's admitted prior art discloses wherein said RF transceiver includes a first phase locked loop (PLL) (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to include in the RF transceiver of Kohlschmidt/Amos a first phase locked loop as suggested by Appellant's admitted prior art for the advantages of making integral and placing in a single housing.

Regarding claims 161 and 222, the limitations are rejected for the same reasons and motivations stated above for claim 98.

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Regarding claim 99, Kohlschmidt/Amos disclose the wireless device of claim 98 (see above), wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode (Kohlschmidt: col. 6, lines 7-10; col. 7, lines 36-42), but fail to disclose wherein said BBP includes a second PLL.

However, Appellant's admitted prior art discloses wherein said BBP includes a second phase locked loop (PLL) (Background of the Invention: paragraph [0003]; note the plurality of phase locked loops).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to include in the BBP of Kohlschmidt/Amos a second phase locked loop as suggested by Appellant's admitted prior art for the advantages of adjusting the frequency of the input signal, making integral and placing under a single housing; in addition, that PLL are widely available.

Regarding claim 162 and 223, the limitations are rejected for the same reasons and motivations stated above for claim 99.

Claims 103-104, 106-107, 111-113, 166-167, 169-170, 174-176, 226-228, and 231-232 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in views of Amos and Aoyama, as evidenced by Shi.

Regarding claim 103, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

a radio frequency (RF) transceiver that transmits and receives RF signals (Fig. 1, reference 106);

a baseband processor (BBP) that communicates with said RF transceiver (Fig. 1; col. 1, lines 46-51); and

a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42), and that operates said BBP and said RF transceiver in said active mode (col. 3, lines 22-28; col. 5, lines 12-21),

wherein a control device includes said shutdown module (Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2).

Kohlschmidt fails to specifically disclose the BBP that performs RF mixing (Fig. 1; col. 1, lines 46-51); a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode and a medium access control (MAC) device. Note, however, that Kohlschmidt discloses most types of communication systems employ signal processors for the real-time processing of signals (Fig. 1; col. 1, lines 46-51; note that RF mixing is a type of signal processing). Further note that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify the control device of Kohlschmidt to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in

Kohlschmidt, they are widely available and is required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

In addition, in the same field of endeavor, Aoyama discloses a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level (Fig. 3, references Vdd and 1); transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (col. 7, line 51 through col. 8, line 2) and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 37-50).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate in the device of Kohlschmidt and Amos a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it.

In addition, although Kohlschmidt fails to specifically disclose the BBP that performs RF mixing, the Examiner takes Official Notice of fact that it was notoriously well known in the art at the time of invention by Appellant that baseband processors perform RF mixing for the

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advantages of integrating the signal processing components and process in a single entity. As evidence of the fact that baseband processors perform RF mixing, see Shi paragraph [0026]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by Appellant to perform with the BBP of Kohlschmidt RF mixing for the advantages of integrating the signal processing components and process in a single entity.

Regarding claims 166 and 226, the limitations are rejected for the same reasons and motivations stated above for claim 103.

Regarding claim 104, in the obvious combination, Aoyama discloses wherein said voltage supply includes a first voltage supply that supplies said first voltage level (Figs. 3 and 9, reference numeral Vdd) and a second voltage supply that supplies said second voltage level (Figs. 3 and 9, reference numeral 1).

Regarding claim 167, the limitations are rejected for the same reasons and motivations stated above for claim 104.

Regarding claim 104, in the obvious combination, Amos discloses a wireless device with active and low power modes further comprising a medium access controller (MAC) device that includes said shutdown module (from col. 2, line 61 through col. 3, line 8).

Regarding claim 106, in the obvious combination, Kohlschmidt discloses further comprising a first oscillator that communicates with said BBP and said RF transceiver (Fig. 1, reference 101) that generates a first reference frequency (Fig. 1). In addition, in the obvious combination, Aoyama discloses further comprising a first oscillator that receives said first voltage level and that generates a first reference frequency (Fig. 3).

Regarding claims 169 and 227, the limitations are rejected for the same reasons and motivations stated above for claim 106.

Regarding claim 107, in the obvious combination, Kohlschmidt discloses further comprising a second oscillator (Fig. 1, reference 102) that receives said second voltage level, that consumes less power than said first oscillator and that generates a second reference frequency (Fig. 1, reference 102). In addition, in the obvious combination, Aoyama discloses further comprising a second oscillator that receives said second voltage level and that generates a second reference frequency (Fig. 3).

Regarding claims 170 and 228, the limitations are rejected for the same reasons and motivations stated above for claim 107.

Regarding claim 111, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator (Figs. 3 and 9, reference Vdd) and said second voltage supply includes a second voltage regulator (Figs. 3 and 9, reference 1).

Regarding claim 174, the limitations are rejected for the same reasons and motivations stated above for claim 111.

Regarding claim 112, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claims 175 and 231, the limitations are rejected for the same reasons and motivations stated above for claim 112.

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Regarding claim 113, in the obvious combination, Kohlschmidt/Amos/Aoyama discloses a system comprising the wireless device of claim 103 further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (Amos: col. 1, lines 62-65; col. 5, lines 1-8).

Regarding claims 176 and 232, the limitations are rejected for the same reasons and motivations stated above for claim 113.

Claims 108 and 171 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination Amos and Aoyama, and further in view of Chapman.

Regarding claim 94, Kohlschmidt/Amos/Aoyama discloses the wireless device of claim 107 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate the second oscillator of Kohlschmidt/Amos/Aoyama to include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43), and are widely available.

Regarding claims 171, the limitations are rejected for the same reasons and motivations stated above for claim 108.

Claims 109-110, 172-173, and 229-230 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt/Amos/Aoyama as applied to claim 103 above, and further in view of Appellant's admitted prior art.

Regarding claim 109, Kohlschmidt/Amos/Aoyama disclose the wireless device of claim 103 (see above), including a first phase locked loop (PLL) (Kohlschmidt: col. 5, line 65 through col. 6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode (Kohlschmidt: col. 6, lines 7-10); but fails to disclose wherein said RF transceiver includes the first PLL.

However, Appellant's admitted prior art discloses wherein said RF transceiver includes a first phase locked loop (PLL) (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to include in the RF transceiver of Kohlschmidt/Amos/Aoyama a first phase locked loop as suggested by Appellant's admitted prior art for the advantages of making integral, placing in a single housing, and are widely available.

Regarding claims 172 and 229, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 109.

Regarding claim 110, Kohlschmidt/Amos/Aoyama disclose the wireless device of claim 109 (see above), wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode (Kohlschmidt: col. 6, lines 7-10; col. 7, lines 36-42), but fail to disclose wherein said BBP includes a second PLL.



However, Appellant's admitted prior art discloses wherein said BBP includes a second phase locked loop (PLL) (Background of the Invention: paragraph [0003]; note the plurality of phase locked loops).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to include in the BBP of Kohlschmidt/Amos/Aoyama a second phase locked loop as suggested by Appellant's admitted prior art for the advantages of adjusting the frequency of the input signal, making integral and placing under a single housing; in addition, that PLL are widely available.

Regarding claims 173 and 230, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 110.

Claims 114-115, 120-122, 177-178, 183-185, 233-234, and 237-238 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in views of Amos, Aoyama, and Jokinen.

Regarding claim 114, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

- a first oscillator that generates a first reference frequency (Fig. 1, reference 101).

- a second oscillator that generates a second reference frequency that is lower than said first frequency (Fig. 1, reference 102).

- a shutdown module that shuts down said first oscillator in said low power mode (col. 3, lines 22-24; col. 7, lines 36-42), and that operates first oscillator in said active mode (col. 3, lines 22-28; col. 5, lines 12-21), wherein said wireless device at least one of transmits and receives data during the active mode (col. 1, lines 1-26).

wherein a control device includes said shutdown module (Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2).

Kohlschmidt fails to specifically disclose a first voltage supply that supplies a first voltage level to said first oscillator; a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator; the shutdown module that shuts down said first voltage supply in said low power mode; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode and a medium access control (MAC) device. Note, however, that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify the control device of Kohlschmidt to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in Kohlschmidt, they are widely available and is required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

In addition, in the same field of endeavor, Aoyama discloses a first voltage supply that supplies a first voltage level to said first oscillator (Figs. 3 and 9, references Vdd); a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator (Figs. 3 and 9, reference 1); transitioning from said first voltage level to said

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second voltage level when transitioning from said active mode to said low power mode (col. 7, line 51 through col. 8, line 2) and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 37-50).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate in the device of Kohlschmidt and Amos a first voltage supply that supplies a first voltage level to said first oscillator; a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it.

Furthermore, the combination fails to specifically disclose the shut down module that shuts down said first voltage supply. Note, however, that Kohlschmidt discloses that all components of the device may be shut down (col. 7, lines 39-42); thus suggesting, with the combination relied hereinabove, that the shut down module that shuts down said first voltage supply.

Nevertheless, in the same field of endeavor, Jokinen discloses a shut down module that shuts down said first voltage supply (Abstract).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to shut down, with the shut down module of Kohlschmidt, said first voltage supply as suggested by Jokinen for the advantages of reducing power consumption (Jokinen: Abstract).

Regarding claims 177 and 233, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 114.

Regarding claim 115, in the obvious combination, Kohlschmidt discloses further comprising:

a radio frequency (RF) transceiver that communicates with said first oscillator and that transmits and receives RF signals (Fig. 1, reference 106); and

a baseband processor (BBP) that communicates with said first oscillator and said RF transceiver (Fig. 1; col. 1, lines 46-51), wherein said shutdown module that shuts down said RF transceiver and said BBP in said low power mode (col. 7, lines 36-42), and that operates said BBP and said RF transceiver during said active mode (col. 3, lines 22-28; col. 5, lines 12-21).

In addition, although Kohlschmidt fails to specifically disclose the BBP that performs RF mixing, the Examiner takes Official Notice of fact that it was notoriously well known in the art at the time of invention by Appellant that baseband processors perform RF mixing for the advantages of integrating the signal processing components and process in a single entity. As evidence of the fact that baseband processors perform RF mixing, see Shi paragraph [0026]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by Appellant to perform with the BBP of Kohlschmidt RF mixing for the advantages of integrating the signal processing components and process in a single entity.

Regarding claims 178 and 234, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 115.

Regarding claim 120, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator and said voltage supply includes a second voltage regulator (Figs. 3 and 9).

Regarding claim 183, the limitations are rejected as stated above for claim 120.

Regarding claim 121, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claims 184 and 237, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 121.

Regarding claim 122, in the obvious combination, Kohlschmidt/Amos/Aoyama discloses a system comprising the wireless device of claim 114 further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (Amos: col. 1, lines 62-65; col. 5, lines 1-8).

Regarding claims 185 and 238, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 122.

Claims 117 and 180 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination Amos and Aoyama, and further in view of Chapman.

Regarding claim 117, Kohlschmidt/Amos/Aoyama discloses the wireless device of claim 114 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate the second oscillator of Kohlschmidt/Amos/Aoyama to include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43), and are widely available.

Regarding claim 180, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 117.

Claims 118-119, 181-182, and 235-236 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt/Amos/Aoyama as applied to claim 115 above, and further in view of Appellant's admitted prior art.

Regarding claim 118, Kohlschmidt/Amos/Aoyama disclose the wireless device of claim 115 (see above), including a first phase locked loop (PLL) (Kohlschmidt: col. 5, line 65 through col. 6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode (Kohlschmidt: col. 6, lines 7-10); but fails to disclose wherein said RF transceiver includes the first PLL.

However, Appellant's admitted prior art discloses wherein said RF transceiver includes a first phase locked loop (PLL) (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to include in the RF transceiver of Kohlschmidt/Amos/Aoyama a first phase locked loop as suggested by Appellant's admitted prior art for the advantages of making integral, placing in a single housing, and are widely available.

Regarding claims 181 and 235, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 118.

Regarding claim 119, Kohlschmidt/Amos/Aoyama disclose the wireless device of claim 118 (see above), wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode (Kohlschmidt: col. 6, lines 7-10; col. 7, lines 36-42), but fail to disclose wherein said BBP includes a second PLL.

However, Appellant's admitted prior art discloses wherein said BBP includes a second phase locked loop (PLL) (Background of the Invention: paragraph [0003]; note the plurality of phase locked loops).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to include in the BBP of Kohlschmidt/Amos/Aoyama a second phase locked loop as suggested by Appellant's admitted prior art for the advantages of adjusting the frequency of the input signal, making integral and placing under a single housing; in addition, that PLL are widely available.

Regarding claims 182 and 236, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 119.

Claims 134, 137, 139-143, 197, 200, and 202-206 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in views of Aoyama and Jokinen.

Regarding claim 134, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

- a first circuit (Fig. 1, references 106 and portions of 103 either alone or in combination; col. 5, line 65 through col. 6, line 9; col. 7, lines 30-34);

- a second circuit (Figs. 1 and 3-4; col. 7, lines 39-42); and

- a shutdown module that shuts down said first circuit (col. 7, lines 30-34 and 39-40) and operates said second wireless circuit in said low power mode (col. 7, lines 39-42) and that operates said first wireless circuit in said active mode (col. 3, lines 28-32), wherein the wireless device at least one of transmits and receives data during the active mode (col. 1, lines 11-26; note that it is inherent that the wireless device at least one of transmits and receives data during the active mode).

Kohlschmidt fails to specifically disclose the first and second circuits are wireless; a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level, and said shutdown module shuts down said first voltage supply in said low power mode.



However, the Examiner takes Official Notice of the fact that it was notoriously well known in the art at the time of invention by appellant to modify circuits to be wireless for the advantages or facilitating maintenance and replacement of parts; thereby, making it more convenient and easier to manufacture.

In addition, it would have been an obvious matter of design choice to modify the circuits to be wireless since the appellant has not disclosed that the circuits being wireless solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the circuits of Kohlschmidt.

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify the circuits of Kohlschmidt to be wireless for the advantages or facilitating maintenance and replacement of parts, is more convenient, easier to manufacture and is the best engineering design choice.

In addition, in the same field of endeavor, Aoyama discloses a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level (Figs. 3 and 9, reference Vdd and 1); transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (from col. 7, line 66 through col. 8, line 2), transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39) said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level (Figs. 3 and 9, reference Vdd and 1).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate in the device of Kohlschmidt a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level; and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it.

Furthermore, the combination fails to specifically disclose the shut down module that shuts down said first voltage supply. Note, however, that Kohlschmidt discloses that all components of the device may be shut down (col. 7, lines 39-42); thus suggesting, with the combination relied hereinabove, that the shut down module that shuts down said first voltage supply.

Nevertheless, in the same field of endeavor, Jokinen discloses a shut down module that shuts down said first voltage supply in said low power mode (Abstract).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to shut down, with the shut down module of Kohlschmidt, said first voltage supply in said low power mode as suggested by Jokinen for the advantages of reducing power consumption (Jokinen: Abstract).

Regarding claim 197, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 134.

Regarding claim 137, in the obvious combination, Kohlschmidt discloses further comprising: a first oscillator that communicates with said first wireless circuit and that generates a first reference frequency (Fig. 1, reference 101) and a second oscillator that consumes less power than said first oscillator and that generates a second reference frequency (Fig. 1, reference 102). In addition, in the obvious combination, Aoyama discloses further comprising: a first oscillator that communicates with said first wireless circuit (Figs. 3 and 9, reference numeral 3), that receives said first voltage level and that generates a first reference frequency (Figs. 3 and 9, reference numeral 3); and a second oscillator that receives said second voltage level, that communicates with said second wireless circuit, that consumes less power than said first oscillator and that generates a second reference frequency (Figs. 3 and 9, reference numeral 4; col. 5, lines 9-11) (note the modification of the wireless circuit in claim 134).

Regarding claim 200, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 137.

Regarding claim 139, in the obvious combination, Kohlschmidt discloses wherein said shutdown module shuts down said first oscillator (col. 7, lines 30-34) and operates said second oscillator during said low power mode (col. 7, lines 39-42) and operates said first oscillator during said active mode (col. 3, lines 28-32).

Regarding claim 202, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 139.

Regarding claim 140, in the obvious combination, Kohlschmidt discloses wherein said first wireless circuit includes a first phase locked loop (PLL) (col. 5, line 65 through col. 6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode

(col. 5, line 65 through col. 6, line 9) and operates said first PLL during said active mode (col. 3, lines 28-32; col. 5, line 65 through col. 6, line 9).

Regarding claim 203, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 140.

Regarding claim 141, in the obvious combination, Kohlschmidt discloses wherein first wireless circuit includes at least one of a baseband processor (BBP) and/or a radio frequency (RF) transmitter (Fig. 1).

Regarding claim 204, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 141.

Regarding claim 142, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator (Figs. 3 and 9, reference Vdd) and said second voltage supply includes a second voltage regulator (Figs. 3 and 9, reference numeral 1).

Regarding claim 205, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 142.

Regarding claim 143, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claim 206, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 143.

Claims 136, 144, 199, and 207 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination with Aoyama and Jokinen, and further in view of Amos.

Kohlschmidt/Aoyama discloses the wireless device of claim 134 (see above) further comprising a control device that includes said shutdown module (Kohlschmidt: Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2), but fails to specifically disclose a medium access control (MAC) device. Note, however, that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify the control device of Kohlschmidt/Aoyama to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in Kohlschmidt, they are widely available and are required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

Regarding claim 199, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 136.

Regarding claim 144, Kohlschmidt discloses a system comprising the wireless device of claim 123 (see above), but fails to disclose further comprising a remote device that periodically transmits a beacon, wherein said shutdown module transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

However, in the same field of endeavor, Amos discloses a system comprising a wireless device with active and low power modes further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (col. 1, lines 62-65; col. 5, lines 1-8).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to further comprise in the system of Kohlschmidt in combination with Hunter remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon as suggested by Amos because the system would determine if there is any activity that needs to be handled (Amos: col. 5, lines 8-9).

Regarding claim 207, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 144.

Claims 138 and 201 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination with Aoyama and Jokinen and further in view of Chapman.

Regarding claim 138, Kohlschmidt/Aoyama discloses the wireless device of claim 134 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate the second oscillator of Kohlschmidt/Aoyama to include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43), and are widely available.

Regarding claim 201, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 138.

Claims 145-146, 151-152, 208-209, 214-215, 253-24, and 257 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in views of Aoyama and Jokinen.

Regarding claim 145, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

- a first oscillator that generates a first reference frequency (Fig. 1, reference 101);

- a second oscillator that consumes less power than said first oscillator and that generates a second reference frequency (Fig. 1, reference 102);

- a first circuit that communicates with said first oscillator (Fig. 1, references 104, 105, 106, and/or portions of 103, either alone or in combination; col. 5, line 65 through col. 6, line 9; col. 7, lines 30-34);

- a second circuit that communicates with said second oscillator (Figs. 1 and 3-4; col. 7, lines 39-42); and

- a shutdown module that shuts down said first circuit and said first oscillator in said low power mode (col. 7, lines 30-34 and 39-40) operates said second wireless circuit and said second oscillator in said low power mode (col. 7, lines 39-42) and that operates said first wireless circuit in said active mode (col. 3, lines 28-32), and that operates said first wireless circuit and said first oscillator in said active power mode, wherein the wireless device at least one of transmits and receives data during the active mode (col. 1, lines 11-26; note that it is inherent that the wireless device at least one of transmits and receives data during the active mode).

Kohlschmidt fails to specifically disclose the first and second circuits are wireless; a first voltage supply that supplies a first voltage level to said first oscillator and a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator; the shut down module that shuts down said first voltage supply in said low power mode, transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode.

However, the Examiner takes Official Notice of the fact that it was notoriously well known in the art at the time of invention by appellant to modify circuits to be wireless for the advantages or facilitating maintenance and replacement of parts; thereby, making it more convenient and easier to manufacture.

In addition, it would have been an obvious matter of design choice to modify the circuits to be wireless since the appellant has not disclosed that the circuits being wireless solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the circuits of Kohlschmidt.

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify the circuits of Kohlschmidt to be wireless for the advantages or facilitating maintenance and replacement of parts, is more convenient, easier to manufacture and is the best engineering design choice.

In addition, in the same field of endeavor, Aoyama discloses a first voltage supply that supplies a first voltage level to said first oscillator (Figs. 3 and 9, reference Vdd) and a second voltage supply that supplies a second voltage level that is less than said first voltage level to said



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second oscillator (Figs. 3 and 9, reference 1); transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (from col. 7, line 66 through col. 8, line 2), and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate in the device of Kohlschmidt a first voltage supply that supplies a first voltage level to said first oscillator and a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it.

Furthermore, the combination fails to specifically disclose the shut down module that shuts down said first voltage supply in said low power mode. Note, however, that Kohlschmidt discloses that all components of the device may be shut down (col. 7, lines 39-42); thus suggesting, with the combination relied hereinabove, that the shut down module that shuts down said first voltage supply.

Nevertheless, in the same field of endeavor, Jokinen discloses a shut down module that shuts down said first voltage supply in said low power mode (Abstract).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to shut down, with the shut down module of Kohlschmidt, said first voltage supply in said low power mode as suggested by Jokinen for the advantages of reducing power consumption (Jokinen: Abstract).

Regarding claims 208 and 253, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 145.

Regarding claim 146, in the obvious combination, Kohlschmidt discloses wherein said first wireless circuit further comprises:

a radio frequency (RF) transceiver that communicates with said first oscillator and said first voltage supply (Fig. 1, reference 106; note that in the obvious combination the RF transceiver would communicate with the first voltage supply); and

a baseband processor (BBP) that communicates with said first oscillator and said first voltage supply and that performs RF mixing (Fig. 1, references 104 and/or 105, either alone or in combination; col. 1, lines 46-51; note that in the obvious combination the BBP would communicate with the first voltage supply and that it inherently performs RF mixing), wherein said shutdown module shuts down said RF transceiver and said BBP during said low power mode (col. 7, lines 39-42).

Regarding claims 209 and 254, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 146.

Regarding claim 151, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator (Figs. 3 and 9, reference Vdd) and said second voltage supply includes a second voltage regulator (Figs. 3 and 9, reference 1).

Regarding claim 214, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 151.

Regarding claim 152, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claims 215 and 257, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 152.

Claims 147, 153, 210 216, and 258 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination with Aoyama and Jokinen, and further in view of Amos.

Regarding claim 147, Kohlschmidt/Aoyama discloses the wireless device of claim 145 (see above) further comprising a control device that includes said shutdown module (Kohlschmidt: Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2), but fails to specifically disclose a medium access control (MAC) device. Note, however, that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify the control device of Kohlschmidt/Aoyama to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in Kohlschmidt, they are widely available and are required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

Regarding claim 210, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 147.

Regarding claim 153, Kohlschmidt/Aoyama discloses a system comprising the wireless device of claim 145 (see above), but fails to disclose further comprising a remote device that periodically transmits a beacon, wherein said shutdown module transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

However, in the same field of endeavor, Amos discloses a system comprising a wireless device with active and low power modes further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (col. 1, lines 62-65; col. 5, lines 1-8).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to further comprise in the system of Kohlschmidt/Aoyama in combination with Hunter remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon as suggested by Amos because the system would determine if there is any activity that needs to be handled (Amos: col. 5, lines 8-9).

Regarding claims 216 and 258, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 153.

Claims 148 and 211 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination with Aoyama and Jokinen and further in view of Chapman.

Regarding claim 148, Kohlschmidt/Aoyama discloses the wireless device of claim 145 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate the second oscillator of Kohlschmidt/Aoyama to include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43), and are widely available.

Regarding claim 211, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 148.

Claims 149-150, 212-213, and 255-256 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Kohlschmidt in combinations with Aoyama and Jokinen, and further in view of Appellant's admitted prior art.

Regarding claim 149, Kohlschmidt/Aoyama disclose the wireless device of claim 146 (see above), including a first phase locked loop (PLL) (Kohlschmidt: col. 5, line 65 through col.

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6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode (Kohlschmidt: col. 6, lines 7-10); but fails to disclose wherein said RF transceiver includes the first PLL.

However, Appellant's admitted prior art discloses wherein said RF transceiver includes a first phase locked loop (PLL) (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to include in the RF transceiver of Kohlschmidt/Amos/Aoyama a first phase locked loop as suggested by Appellant's admitted prior art for the advantages of making integral, placing in a single housing, and are widely available.

Regarding claims 212 and 255, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 149.

Regarding claim 150, Kohlschmidt/Aoyama disclose the wireless device of claim 149 (see above), wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode (Kohlschmidt: col. 6, lines 7-10; col. 7, lines 36-42), but fail to disclose wherein said BBP includes a second PLL.

However, Appellant's admitted prior art discloses wherein said BBP includes a second phase locked loop (PLL) (Background of the Invention: paragraph [0003]; note the plurality of phase locked loops).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to include in the BBP of Kohlschmidt/Aoyama a second phase locked loop as suggested by Appellant's admitted prior art for the advantages of adjusting the frequency

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of the input signal, making integral and placing under a single housing; in addition, that PLL are widely available.

Regarding claims 213 and 256, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 150.

#### **(10) Response to Argument**

Regarding claims 134, 136-153, 197, 199-216, and 253-258 under 35 U.S.C 112<sup>th</sup>, second paragraph, Appellant argues that:

- i) One skilled in the art reading claim 134 would understand that the first and second wireless circuits referred to in the claim refer to, e.g., the circuits of the wireless device 48 as shown in Fig. 3; the baseband processor (BBP) and radio frequency (RF) transceiver are “wireless” circuits by virtue of being circuits of a wireless device (i.e., “wireless circuits” refers to “circuits in a wireless device”) (see section VII subsection A of brief).

#### **Examiner Answers:**

Although device 48 is, as argued, a wireless device and relates to radio communications, the circuits within the device 48 are not wireless. A person looking at the drawings and reading the claims may possibly be confused and may not understand that the term “wireless circuits”, as intended by appellant, is meant as any circuit (e.g., wired) of a wireless device. Instead, the claimed term “wireless circuits”, gives the notion that the circuits have no wires or that the circuits receive/transmit wirelessly. Where appellant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one

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reasonably skilled in the art on notice that the appellant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term is indefinite because the specification does not clearly redefine the term.

Regarding claims 1-25, 31-55, and 61-85 (i.e., claims 1, 18, 31, 48, 61, and 78, as well as their dependents claims), Appellant argues that:

- ii) The Examiner is picking and choosing only so much of Joking and Aoyama as will support the Examiner's position (see section VII subsection B, 2<sup>nd</sup> paragraph of brief).

Examiner Answers:

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). The combined teachings of the references would have suggested to one of ordinary skill in the art the invention claimed.

Appellant argues that:

- iii) Jokinen appears to be absent of any teaching or suggestion that the regulator REG 1 dissipates less power than any of the other REG 2, 3, and 4 (see section VII subsection B, page 18, 2<sup>nd</sup> full paragraph of brief).

Examiner Answers:

That is the same reason why an obviousness type rejection with the teachings of Aoyama was made. Furthermore, by distributing the voltage of REG 1 (i.e., supplying the power of REG 1) to the outputs of the other regulators, the dissipated power through the outputs is less than the dissipated power when in active mode.

Appellant argues that:



- iv) Jokinen relies on the act of powering down the other regulators to reduce power consumption, rather than switching to a second low power regulator and, as such, a second low power regulator would be unnecessary in Jokinen, and Jokinen is absent of any teaching or suggestion that the voltage regulator REG 1 dissipates less power than any of the other regulators (see section VII subsection B, page 18, 3<sup>rd</sup> full paragraph of brief).

Examiner Answers:

In response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., switching to) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In addition, Jokinen discloses switching voltage regulators (col. 4, lines 30-36). Consequently, Jokinen's first and second voltage regulators are necessary, since Jokinen already discloses the need of at least two voltage regulators (col. 4, lines 30-46), and modifying the second regulator to be low power would further reduce power consumption. With regards to Jokinen being absent of any teaching or suggestion that the voltage regulator REG 1 dissipates less power than any of the other regulators, that is the same reason why an obviousness type rejection with the teachings of Aoyama was made. Furthermore, by distributing the voltage of REG 1 (i.e., supplying the power of REG 1) to the outputs of the other regulators, the dissipated power through the outputs is less than the dissipated power when in active mode.

Appellant argues that:

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- v) The Examiner provides no evidence or support for the modification of Jokinen with Aoyama (see section VII subsection B, page 18, 4<sup>th</sup> full paragraph of brief).

Examiner Answers:

As stated in the last Office Action, Aoyama discloses a device with active and low power modes comprising a second voltage regulator that dissipates less power than said first voltage regulator (Fig. 3, reference 1; col. 3, lines 6-10; col. 7, line 66 through col. 8, line 2), obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's second voltage regulator to dissipate less power than said first voltage regulator as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-31). Accordingly, the evidence is provided by the cited sections in Aoyama (i.e., Fig. 3, reference 1; col. 3, lines 6-10; col. 7, line 66 through col. 8, line 2) and the support for the modification of Jokinen is to enable respective units and circuits to maintain their operations while reducing power consumption as disclosed by Aoyama in col. 3, lines 20-31.

Appellant argues that:

- vi) Jokinen already provides a different structure to reduce power consumption (see section VII subsection B, page 18, last paragraph of brief).

Examiner Answers:

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also *In re Sneed*, 710

F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) (“It is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.”); and *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”).

Appellant argues that:

vii) One skilled in the art presented with Jokinen, which already provides a structure for reducing power consumption, would have no reason to modify the device with Aoyama, which provides a different structure for reduction power consumption (see section VII subsection B, page 19, 1<sup>st</sup> paragraph of brief).

Examiner Answers:

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also *In re Sneed*, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) (“It is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.”); and *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”). Further, the structure of Jokinen is not modified with the structure of Aoyama, since Jokinen already discloses a second voltage regulator. The combination is based on modifying the already provided second voltage regulator of Jokinen to dissipate less power as suggested by Aoyama.

Appellant argues that:

viii) Claim 1 recites that the MAC device selects the second voltage regulator during the low power mode, in other words, the MAC switches to the second, low power regulator, and as such, the Examiner's allegation that Appellants relied upon features are not recited in the claims is improper (see section VII subsection B, page 19, 2<sup>nd</sup> paragraph of brief).

Examiner Answers:

The terms "selecting" and "switching" are two different things. Selecting a second voltage regulator, does not necessarily mean switching two a second voltage regulator. Appellant's arguments are more specific than claims.

Appellant argues that:

ix) The Examiner fails to provide any reference that discloses a medium access controller (MAC) device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode (see section VII subsection B, page 19, 2<sup>nd</sup> full paragraph of brief).

Examiner Answers:

Jokinen discloses a controller device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode (col. 5, lines 17-23; col. 6, lines 12-17), but failed to specifically disclose the controller being a MAC. The last Office Action (page 10) stated that Jokinen's wireless network device may be mobile telephones or portable computers (Jokinen: col. 4, lines 40-45), notoriously well known in the art, at the time of invention by appellant, for their configuration in wireless Ethernet networks and that MAC devices are representative of Ethernet network devices. Nevertheless, the Office Action

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(page 11) cited Karaoguz as disclosing this feature. In the same field of endeavor, Karaoguz discloses a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]). Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's device to operate in a wireless Ethernet network and modifying the controlling device of Jokinen to be a MAC as suggested by Karaoguz for the advantages that Ethernet is widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC complies with wireless network devices, specifically Ethernet. Accordingly, the combination of the references discloses the claimed medium access controller (MAC) device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode.

Appellant argues that:

- x) A mere alleged presence of a MAC device is not an explicit or implicit disclosure that the MAC device specifically, is selecting between the first and second voltage regulators (see section VII subsection B, page 19, 2<sup>nd</sup> full paragraph of brief).

Examiner Answers:

Jokinen discloses a controller device that selects between the first and second voltage regulators (col. 5, lines 17-23; col. 6, lines 12-17), but failed to specifically disclose the controller being a MAC. The last Office Action (page 10) stated that Jokinen's wireless network device may be mobile telephones or portable computers (Jokinen: col. 4, lines 40-45), notoriously well known in the art, at the time of invention by appellant, for their configuration in wireless Ethernet networks and that MAC devices are representative of Ethernet network

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devices. Nevertheless, the Office Action (page 11) cited Karaoguz as disclosing this feature. In the same field of endeavor, Karaoguz discloses a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]). Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's controlling device to be a MAC as suggested by Karaoguz for the advantages of being widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC complies with wireless network devices, specifically Ethernet. Accordingly, the combination of the references discloses the claimed medium access controller (MAC) device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode.

Appellant argues that:

- xi) The Examiner has given little or no consideration of the limitation and failed to give the limitation any weight (see section VII subsection B, page 20, 3<sup>rd</sup> full paragraph of brief).

Examiner Answers:

The last Office Action (page 10) stated Jokinen discloses a controller device that selects between the first and second voltage regulators (col. 5, lines 17-23; col. 6, lines 12-17), but failed to specifically disclose the controller being a MAC. The last Office Action (page 10) further stated that Jokinen's wireless network device may be mobile telephones or portable computers (Jokinen: col. 4, lines 40-45), notoriously well known in the art, at the time of invention by appellant, for their configuration in wireless Ethernet networks and that MAC devices are representative of Ethernet network devices. Nevertheless, the Office Action (page 11) cited

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Karaoguz as disclosing this feature. In the same field of endeavor, Karaoguz discloses a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]). Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's controlling device to be a MAC as suggested by Karaoguz for the advantages of being widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC complies with wireless network devices, specifically Ethernet. Accordingly, the Examiner did consider the limitation and gave the limitation patentable weight.

Appellant argues that:

xii) Karaoguz appears to be absent of any teaching or suggestion that the MAC device selects between first and second voltage regulators (see section VII subsection B, page 19, 3<sup>rd</sup> full paragraph of brief).

Examiner Answers:

In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Jokinen discloses a controller device that selects between the first and second voltage regulators (col. 5, lines 17-23; col. 6, lines 12-17), but failed to specifically disclose the controller being a MAC. The last Office Action (page 10) stated that Jokinen's wireless network device may be mobile telephones or portable computers (Jokinen: col. 4, lines 40-45), notoriously well known in the art, at the time of invention by appellant, for their configuration in wireless Ethernet networks and that MAC

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devices are representative of Ethernet network devices. Nevertheless, the Office Action (page 11) cited Karaoguz as disclosing this feature. In the same field of endeavor, Karaoguz discloses a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]). Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's controlling device to be a MAC as suggested by Karaoguz for the advantages of being widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC complies with wireless network devices, specifically Ethernet. Accordingly, the combination of the references discloses the claimed medium access controller (MAC) device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode as claimed.

Appellant argues that:

- xiii) The Examiner appears to be relying on the mere existence of a MAC device in the secondary reference as motivation for modifying the controller of Jokinen (see section VII subsection B, page 19, 4<sup>th</sup> full paragraph of brief).

Examiner Answers:

Jokinen discloses a controller device that selects between the first and second voltage regulators (col. 5, lines 17-23; col. 6, lines 12-17), but failed to specifically disclose the controller being a MAC. The last Office Action (page 10) stated that Jokinen's wireless network device may be mobile telephones or portable computers (Jokinen: col. 4, lines 40-45), notoriously well known in the art, at the time of invention by appellant, for their configuration in wireless Ethernet networks and that MAC devices are representative of Ethernet network



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devices. Nevertheless, the Office Action (page 11) cited Karaoguz as disclosing this feature. In the same field of endeavor, Karaoguz discloses a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]). Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to modify Jokinen's controlling device to be a MAC as suggested by Karaoguz for the advantages of being widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC complies with wireless network devices, specifically Ethernet. Thus, not only relying on the mere existence as argued, but also relying in that such existence has been widely available, is cost-effective, and the best engineering design choice since medium access controllers comply with wireless network devices, specifically Ethernet.

Appellant argues that:

- xiv) In paragraph [0042] of Karaoguz the power save module 150, not the MAC device 210, determines whether to power down and power up a particular element and as such, the reference relied on by the Examiner to disclose that a MAC device can be modified to select between first and second voltage regulators does not even disclose that its own MAC device 210 operates in this manner and therefore, one skilled in the art would find no motivation in Karaoguz to modify a MAC device to select between voltage regulators when the MAC of Karaoguz is itself powered down by a controller 150 that is already modified as a power control device (see section VII subsection B, page 20, last paragraph of brief).

Examiner Answers:

At the outset, Appellant is relying on a section (i.e., paragraph [0042]) not cited by the Examiner in the Office Action. The Office Action clearly cited paragraph [0054] as disclosing this feature. In paragraph [0054] of Karaoguz the power control module or the MAC makes the power down and power up decisions. In addition, the controlling device of Jokinen already selects between voltage regulators, but failed to specifically disclose the controlling the device being a MAC, reason to modify with Karaoguz. Accordingly, the combination of the references discloses the claimed medium access controller (MAC) device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode as claimed.

Regarding claims 134, 136-144, 197, and 199-207, Appellant argues that:

xv) The Examiner is picking and choosing only so much of Jokinen and Aoyama as will support the Examiner's position (see section VII subsection C, 2<sup>nd</sup> paragraph of brief).

Examiner Answers:

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). The combined teachings of Kohlschmidt in view of Aoyama and Jokinen would have suggested to one of ordinary skill in the art the invention claimed.

Appellant argues that:

xvi) The Examiner acknowledges that Jokinen fails to disclose the limitations and that Jokinen appears to be absent of any teaching or suggestion that the regulator REG 1 dissipates less power than any of the other regulators REG 2, 3, and 4 (see section VII subsection C, page 22, 2<sup>nd</sup> full paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Aoyama was used to show the disclosure of a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level (Figs. 3 and 9, reference Vdd and 1); not Jokinen. Jokinen was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 47).

Appellant argues that:

xvii) Jokinen relies on the act of powering down the other regulators to reduce power consumption, rather than switching to a second, low power supply (see section VII subsection C, page 22, 3<sup>rd</sup> full paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Aoyama was used to show the disclosure of transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (from col. 7, line 66 through col. 8, line 2), transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39) said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level (Figs. 3 and 9, reference Vdd and 1); not Jokinen. Jokinen was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 47).

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Furthermore, in response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., switching to) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant argues that:

xviii) The Examiner relies on Fig. 3 of Aoyama to disclose a voltage supply that supplies a first and second voltage levels, but provides no evidence or support for this modification and that the Examiner alleges that one skill in the art would be motivated to modify Jokinen with Aoyama “for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption” (see section VII subsection C, page 22, last paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Jokinen was not modified with the Aoyama. In contrast, primary reference Kohlschmidt was modified with Aoyama and the combination of Kohlschmidt and Aoyama was modified with Jokinen. Jokinen was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 47). Thus, Aoyama discloses a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level (Figs. 3 and 9, reference Vdd and 1); transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode

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(from col. 7, line 66 through col. 8, line 2), transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39) said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level (Figs. 3 and 9, reference Vdd and 1). Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate in the device of Kohlschmidt a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level; and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it. Accordingly, the Examiner provided evidence and support for this modification.

Appellant argues that:

- xix) One skilled in the art presented with Jokinen, which already provides a structure for reducing power consumption, would have not reason to modify the device with Aoyama, which provides a different structure for reducing power consumption (see section VII subsection C, page 23, 1<sup>st</sup> full paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Jokinen was not modified with the Aoyama. In contrast, primary reference Kohlschmidt was modified with Aoyama and the combination of Kohlschmidt and Aoyama was modified with Jokinen. Jokinen was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 47). In addition, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also *In re Sneed*, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) (“It is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.”); and *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”).

Appellant argues that:

xx) Neither col. 3, lines 20-31 nor any other portion of Aoyama provides motivation for modifying the structure of Jokinen (see section VII subsection C, page 23, 3<sup>rd</sup> full paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Jokinen was not modified with the Aoyama. In contrast, primary reference Kohlschmidt was modified with

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Aoyama and the combination of Kohlschmidt and Aoyama was modified with Jokinen. Jokinen was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 47). In contrast to what is being argued, the structure of Jokinen was not modified.

Regarding claims 145-153, 208-216, and 253-258, Appellant argues that:

xxi) The Examiner is picking and choosing only so much of Joking and Aoyama as will support the Examiner's position (see section VII subsection D, 2<sup>nd</sup> paragraph of brief).

Examiner Answers:

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). The combined teachings of Kohlschmidt in view of Aoyama and Jokinen would have suggested to one of ordinary skill in the art the invention claimed.

Appellant argues that:

xxii) The Examiner acknowledges that Jokinen fails to disclose the limitations and that Jokinen appears to be absent of any teaching or suggestion that the regulator REG 1 dissipates less power than any of the other regulators REG 2, 3, and 4 (see section VII subsection D, page 24, last paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Aoyama was used to show the disclosure of a voltage supply that supplies a first voltage level and a second voltage

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level that is less than said first voltage level (Figs. 3 and 9, reference Vdd and 1); not Jokinen. Jokinen was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 55).

Appellant argues that:

xxiii) Jokinen relies on the act of powering down the other regulators to reduce power consumption, rather than switching to a second, low power supply (see section VII subsection D, page 25, 1<sup>st</sup> full paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Aoyama was used to show the disclosure of transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (from col. 7, line 66 through col. 8, line 2), transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39) said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level (Figs. 3 and 9, reference Vdd and 1); not Jokinen. Jokinen was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 55). Furthermore, in response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., switching to) are not recited in the rejected claim(s). Although the claims are interpreted in light of the



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specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant argues that:

xxiv) The Examiner relies on Fig. 3 of Aoyama to disclose a voltage supply that supplies a first and second voltage levels, but provides no evidence or support for this modification and that the Examiner alleges that one skill in the art would be motivated to modify Jokinen with Aoyama “for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption” (see section VII subsection D, page 23, 2<sup>nd</sup> full paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Jokinen was not modified with the Aoyama. In contrast, primary reference Kohlschmidt was modified with Aoyama and the combination of Kohlschmidt and Aoyama was modified with Jokinen. Jokinen was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 55). Thus, Aoyama discloses a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level (Figs. 3 and 9, reference Vdd and 1); transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (from col. 7, line 66 through col. 8, line 2), transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39) said voltage supply includes a first voltage supply that supplies

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said first voltage level and a second voltage supply that supplies said second voltage level (Figs. 3 and 9, reference Vdd and 1). Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by appellant to incorporate in the device of Kohlschmidt a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level; and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it. Accordingly, the Examiner provided evidence and support for this modification.

Appellant argues that:

xxv) One skilled in the art presented with Jokinen, which already provides a structure for reducing power consumption, would have not reason to modify the device with Aoyama, which provides a different structure for reducing power consumption (see section VII subsection D, page 25, 3<sup>rd</sup> full paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Jokinen was not modified with the Aoyama. In contrast, primary reference Kohlschmidt was modified with Aoyama and the combination of Kohlschmidt and Aoyama was modified with Jokinen. Jokinen

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was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 55). In addition, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also *In re Sneed*, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) (“It is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.”); and *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”).

Appellant argues that:

xxvi) Neither the cited portion (col. 3, lines 20-31) nor any other portion of Aoyama provides motivation for modifying the structure of Jokinen (see section VII subsection C, page 26, 1<sup>st</sup> full paragraph of brief).

Examiner Answers:

At the outset, the rejection was cited as unpatentable over Kohlschmidt in view of Aoyama and Jokinen. Appellant appears to be confused as to the rejection. Jokinen was not modified with the Aoyama. In contrast, primary reference Kohlschmidt was modified with Aoyama and the combination of Kohlschmidt and Aoyama was modified with Jokinen. Jokinen was solely used for the teaching of a shut down module that shuts down said first voltage supply in said low power mode (Abstract) (see last Office Action, page 47). In contrast to what is being argued, the structure of Jokinen was not modified.

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Regarding claims 26-30, 56-60, and 86-90, Appellant argues that:

xxvii) Jokinen, either singularly or in combination with Karaoguz and Aoyama, fails to show, teach or suggest at least a baseband processor (BBP) comprising a first voltage regulator and a second voltage regulator (see section VII subsection D, 1<sup>st</sup> paragraph of brief).

Examiner Answers:

Jokinen discloses a processor that includes first and second voltage regulators (col. 1, lines 13-17; col. 4, lines 40-45). Jokinen's voltage regulators and switches (shown e.g., in Fig. 4; col. 6, lines 12-18) processes the voltage/control signals and any apparatus that processes a signal is fairly characterized as a processor. Jokinen failed to specifically disclose a baseband processor, reason to modify with Karaoguz.

Appellant argues that:

xxviii) Karaoguz still fails to disclose that the alleged BBP includes the first and second voltage regulators (see section VII subsection E, page 27, 1<sup>st</sup> paragraph of brief).

Examiner Answers:

Jokinen discloses a processor that includes first and second voltage regulators (col. 1, lines 13-17; col. 4, lines 40-45). Jokinen's voltage regulators and switches (shown e.g., in Fig. 4; col. 6, lines 12-18) processes the voltage/control signals and any apparatus that processes a signal is fairly characterized as a processor. Jokinen failed to specifically disclose a baseband processor, reason to modify with Karaoguz. Accordingly, by modifying the processor of Jokinen, that includes first and second voltage regulators as explained above, to be a BBP, such

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as the BBP of Karaoguz, the combination of Jokinen with Karaoguz discloses the invention claimed.

Appellant argues that:

xxix) Neither the cited portions of Jokinen nor any other cited portion discloses that a processor includes the voltage regulators (see section VII subsection E, 2<sup>nd</sup> paragraph of brief).

Examiner Answers:

Jokinen discloses a processor that includes first and second voltage regulators (col. 1, lines 13-17; col. 4, lines 40-45). Jokinen's voltage regulators and switches (shown e.g., in Fig. 4; col. 6, lines 12-18) processes the voltage/control signals and any apparatus that processes a signal is fairly characterized as a processor.

Appellant argues that:

xxx) Jokinen is absent of any teaching or suggestion that the processor itself includes the voltage regulators (see section VII subsection E, 3<sup>rd</sup> paragraph of brief).

Examiner Answers:

Jokinen discloses a processor that includes first and second voltage regulators (col. 1, lines 13-17; col. 4, lines 40-45). Jokinen's voltage regulators and switches (shown e.g., in Fig. 4; col. 6, lines 12-18) processes the voltage/control signals and any apparatus that processes a signal is fairly characterized as a processor.

Regarding claims 91-92, 94-102, 154-155, 157-165, and 217-225, Appellant argues that:

xxxi) Kohlschmidt, either singularly or in combination with Amos, fails to show, teach or suggest at least a MAC including a shutdown module that shuts down a BBP and

an RF transceiver in low power mode (see section VII subsection F, 1<sup>st</sup> paragraph of brief).

Examiner Answers:

Kohlschmidt discloses a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42); note that all components in the terminal may be shut down during the sleep mode except for the slow clock 102 and the portion of the CSP 103 containing the counter, but failed to specifically disclose a MAC including the disclosed shut down module, reason to modify with Amos. However, the Office Action stated that Kohlschmidt's Fig. 1; reference 103 can be fairly characterized as a MAC device. Nevertheless, Amos was cited to disclose wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Appellant argues that:

xxxii) The alleged shutdown module in the MAC of Amos does not shut down a BBP and an RF transceiver as the claim recites, but instead lowers an operating frequency of the MAC itself (see section VII subsection F, 2<sup>nd</sup> paragraph of brief).

Examiner Answers:

Primary reference Kohlschmidt discloses a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42), but failed to specifically disclose a MAC including the disclosed shutdown module, reason to modify with Amos. As admitted by Appellant (see section VII subsection F, 2<sup>nd</sup> paragraph of brief), Amos MAC device includes a shutdown module. The limitation of shutting down a BBP and an RF transceiver was

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disclosed by the primary reference. Accordingly, the combination of the references discloses the invention claimed.

Appellant argues that:

xxxiii) The alleged shutdown module in the MAC of Amos is not analogous to the shutdown module of Appellants claim, which recites that the shutdown module shuts down the BBP and the RF transceiver (see section VII subsection F, page 29, 1<sup>st</sup> paragraph of brief).

Examiner Answers:

Primary reference Kohlschmidt discloses a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42), but failed to specifically disclose a MAC including the disclosed shutdown module, reason to modify with Amos. As admitted by Appellant (see section VII subsection F, 2<sup>nd</sup> paragraph of brief), Amos MAC device includes a shutdown module. The limitation of shutting down a BBP and an RF transceiver was disclosed by the primary reference. Accordingly, the combination of the references discloses the invention claimed.

Regarding claims 103-104, 106-113, 166-167, 169-176, and 226-232, Appellant argues that:

xxxiv) Kohlschmidt, either singularly or in combination with Amos, fails to show, teach or suggest at least a MAC including a shutdown module that shuts down a BBP and an RF transceiver in low power mode (see section VII subsection G, 1<sup>st</sup> paragraph of brief).

Examiner Answers:

Kohlschmidt discloses a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42); note that all components in the terminal may be shut down during the sleep mode except for the slow clock 102 and the portion of the CSP 103 containing the counter, but failed to specifically disclose a MAC including the disclosed shut down module, reason to modify with Amos. However, the Office Action stated that Kohlschmidt's Fig. 1; reference 103 can be fairly characterized as a MAC device. Nevertheless, Amos was cited to disclose wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Appellant argues that:

xxxv) The alleged shutdown module in the MAC of Amos does not shut down a BBP and an RF transceiver as the claim recites, but instead lowers an operating frequency of the MAC itself (see section VII subsection G, 3<sup>rd</sup> paragraph of brief).

Examiner Answers:

Primary reference Kohlschmidt discloses a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42), but failed to specifically disclose a MAC including the disclosed shutdown module, reason to modify with Amos. As admitted by Appellant (see section VII subsection F, 2<sup>nd</sup> paragraph of brief), Amos MAC device includes a shutdown module. The limitation of shutting down a BBP and an RF transceiver was disclosed by the primary reference. Accordingly, the combination of the references discloses the invention claimed.

Appellant argues that:



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xxxvi) The alleged shutdown module in the MAC of Amos is not analogous to the shutdown module of Appellants claim, which recites that the shutdown module shuts down the BBP and the RF transceiver (see section VII subsection G, page 30, 1<sup>st</sup> paragraph of brief).

Examiner Answers:

Primary reference Kohlschmidt discloses a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42), but failed to specifically disclose a MAC including the disclosed shutdown module, reason to modify with Amos. As admitted by Appellant (see section VII subsection F, 2<sup>nd</sup> paragraph of brief), Amos MAC device includes a shutdown module. The limitation of shutting down a BBP and an RF transceiver was disclosed by the primary reference. Accordingly, the combination of the references discloses the invention claimed.

Regarding claims 114-115, 117-122, 177-178, 180-185, and 233-238, Appellant argues that:

xxxvii) Kohlschmidt, either singularly or in combination with Amos, fails to show, teach or suggest at least a MAC including a shutdown module that shuts down a first oscillator and a first voltage supply in low power mode (see section VII subsection H, 1<sup>st</sup> paragraph of brief).

Examiner Answers:

Kohlschmidt discloses a shutdown module that shuts down a first oscillator (col. 3, lines 22-24; col. 7, lines 36-42), but failed to specifically disclose a MAC including the disclosed shutdown module, reason to modify with Amos and the first voltage supply, reason to modify with

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Aoyama and Jokinen. However, the Office Action stated that Kohlschmidt's Fig. 1; reference 103 can be fairly characterized as a MAC device. Nevertheless, Amos was cited to disclose wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24). Aoyama was cited to disclose a first voltage supply (Figs. 3 and 9, references Vdd) and Jokinen was cited to disclose a shut down module that shuts down said first voltage supply (Abstract), although Kohlschmidt suggest this limitation in col. 7, lines 36-42 by shutting down all components of the device. Accordingly, the combination of the references discloses a MAC including a shutdown module that shuts down a first oscillator and a first voltage supply in low power mode.

Appellant argues that:

xxxviii) The alleged shutdown module in the MAC of Amos does not shut down a first oscillator and first voltage supply as the claim recites, but instead lowers an operating frequency of the MAC itself (see section VII subsection H, page 31, 1<sup>st</sup> paragraph of brief).

Examiner Answers:

Primary reference Kohlschmidt discloses a shutdown module that shuts down a first oscillator in said low power mode (col. 7, lines 36-42), but failed to specifically disclose a MAC including the disclosed shutdown module, reason to modify with Amos. Kohlschmidt suggest this limitation in col. 7, lines 36-42 by shutting down all components of the device. As admitted by Appellant (see section VII subsection F, 2<sup>nd</sup> paragraph of brief), Amos MAC device includes a shutdown module. The limitation of shutting down a first oscillator and first voltage supply

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was disclosed by the primary reference and by Jokinen. Accordingly, the combination of the references discloses the invention claimed.

Appellant argues that:

xxxix) The alleged shutdown module in the MAC of Amos is not analogous to the shutdown module of Appellants claim, which recites that the shutdown module shuts down the first oscillator and the first voltage supply (see section VII subsection H, page 32, last paragraph of brief).

Examiner Answers:

Primary reference Kohlschmidt discloses a shutdown module that shuts down the first oscillator in said low power mode (col. 7, lines 36-42), but failed to specifically disclose a MAC including the disclosed shutdown module, reason to modify with Amos. As admitted by Appellant (see section VII subsection F, 2<sup>nd</sup> paragraph of brief), Amos MAC device includes a shutdown module. Consequently, it would have been obvious to incorporate the shut down module of Kohlschmidt in the MAC of Amos. The limitation of shutting down a first oscillator and first voltage supply was disclosed by the primary reference and by Jokinen. Accordingly, the combination of the references discloses the invention claimed.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/MARIVELISSE SANTIAGO-CORDERO/

Examiner, Art Unit 2617

Marivelisse Santiago-Cordero

Conferees:

/William Trost/

Supervisory Patent Examiner, Art Unit 2617

William Trost  
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